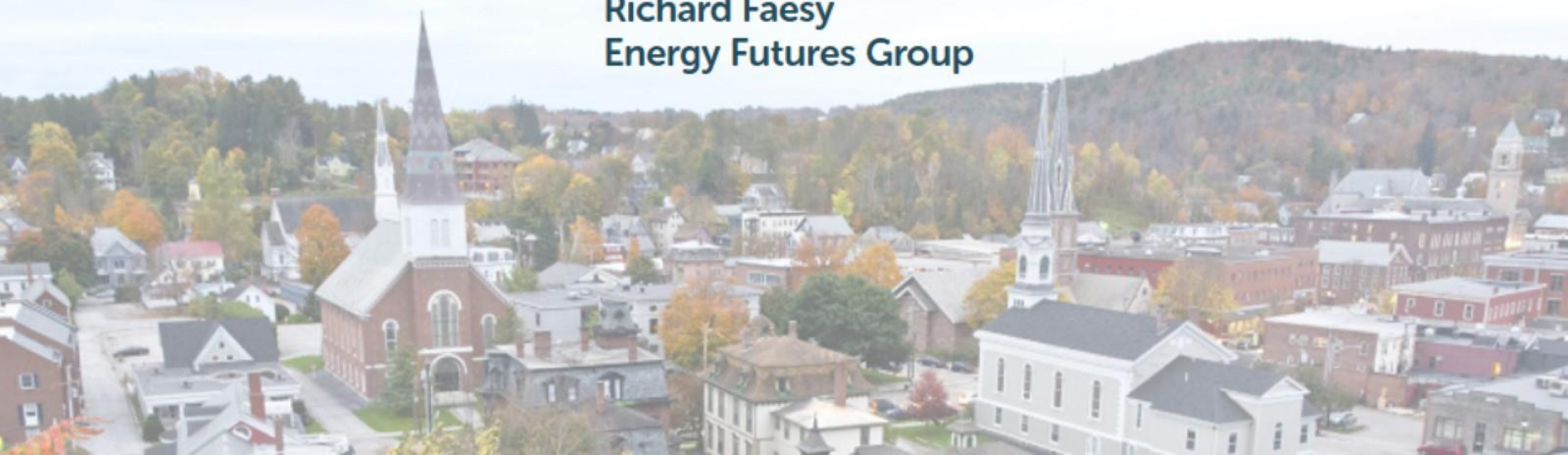


# Vermont's Progress on Building Energy Disclosure

Emily Levin  
Vermont Energy Investment Corporation

Richard Faesy  
Energy Futures Group



# Agenda

- Who we are
- Background and context on energy disclosure and labeling
- Progress to date on residential energy labeling
- Progress to date on commercial and multifamily energy labeling
- Preview of proposed legislation

# Who We Are

# Richard Faesy, EFG



- Energy Futures Group
  - Hinesburg-based energy consulting firm
  - Contracted to Efficiency Vermont and PSD to support energy labeling efforts
- Residential Working Group member
- Facilitated Commercial Working Group
- Co-author of both residential and commercial reports to the Legislature

# Emily Levin, VEIC

- VEIC:
  - Nonprofit with VT, DC, OH offices
  - 340 employees
  - Consulting and implementation on energy efficiency, renewable energy, and transportation
- Chair of Residential Working Group
- Co-author of reports to Legislature
- Leading home energy labeling pilot



veic.org

Efficiency  
Vermont

EFFICIENCY\$MART



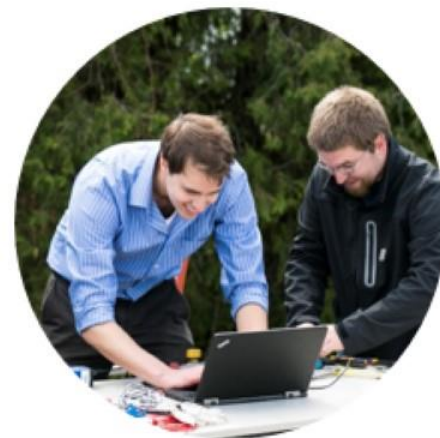
DC  
SUSTAINABLE ENERGY  
UTILITY

Efficiency  
Vermont



# Efficiency Vermont

- Founded in 2000
- Statewide independent energy efficiency utility
- Administered by VEIC, under appointment of Public Service Board
- Offices in Burlington, Barre, and Rutland
- Implementation lead for home energy labeling pilot



# Residential Energy Labeling Working Group



VT Green Homes Alliance

VermontRealtors®



VT Public Service  
Department



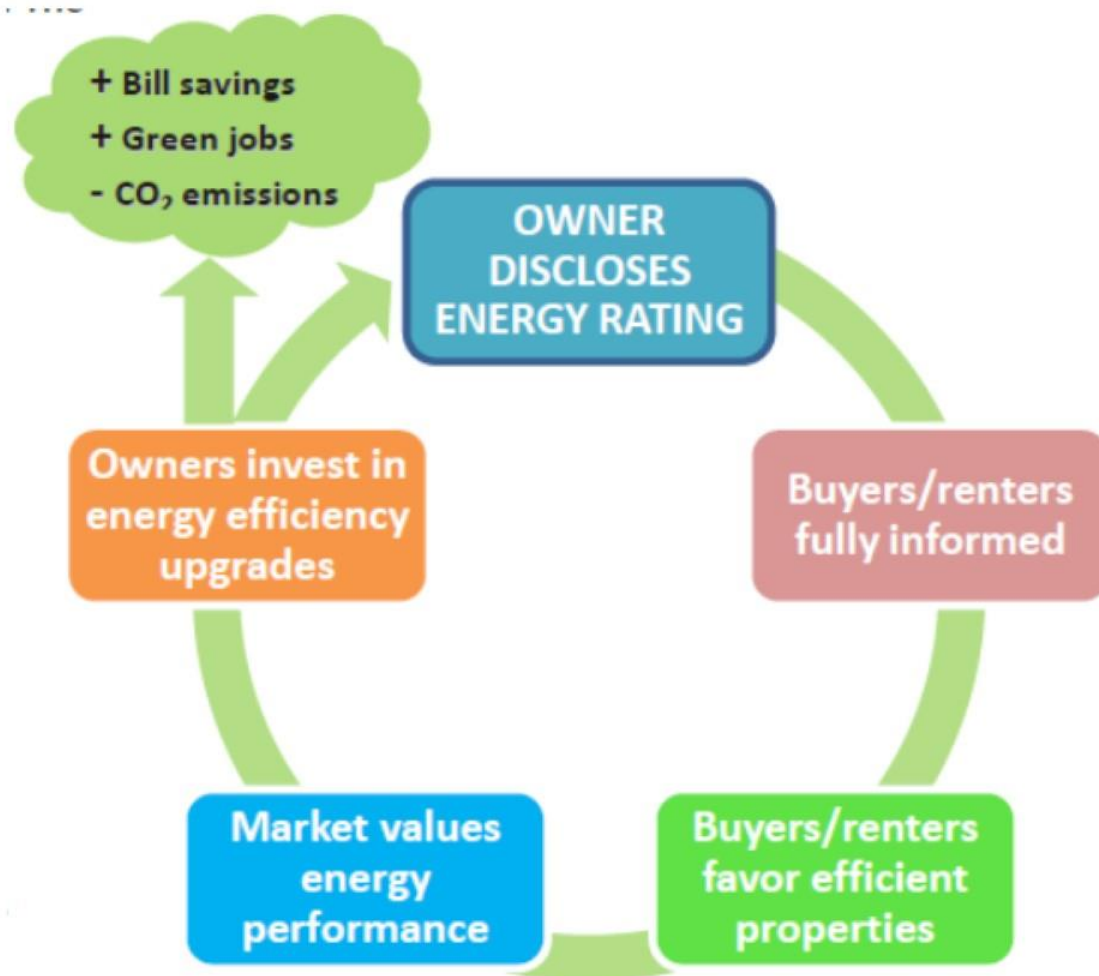
# Commercial Energy Labeling Working Group

- Vermont Public Service Department
- Energy Efficiency Utilities
  - Efficiency Vermont
  - Vermont Gas Systems
  - Burlington Electric Department
- Weatherization Assistance Program representatives
  - Capstone Community Action
  - Vermont Fuel Efficiency Partnership
- Vermont Housing Conservation Board
- Energy Futures Group



# Background & Context

# Why Label Homes?



From NEEP's  
Valuing Building Energy  
Efficiency Through  
Disclosure And Upgrade  
Policies A Roadmap For  
The Northeast U.S.

# Vermont's Disclosure and Labeling History

1987

Energy Rated  
Homes of VT  
(HERS)

2011

Building Energy  
Disclosure  
Working Group

2012

Thermal  
Efficiency  
Taskforce

2015-2016

Residential  
Energy Labeling  
Pilot Program

2011

Comprehensive  
Energy Plan

2013-2014

Act 89 –  
Residential &  
Commercial  
Working Groups

2016

Act 89 –  
Progress  
Report to  
Legislature

# Labeling in Thermal Efficiency Legislation

- Act 89 of 2013
  - “Voluntary Building Energy Disclosure Working Group”
  - Develop or select one or more tools that can be used to generate the energy rating” that would be used “to disclose the energy performance of the building or a unit within the building ...”
  - Reports:
    - Dec. 2013: Residential recommendations
    - Dec. 2014: Commercial & multifamily recommendations
    - Dec. 2016: Progress report on development & use of disclosure tools



# **Progress on Residential Single-Family Building Labeling**

# Residential Energy Labeling Working Group



VT Green Homes Alliance

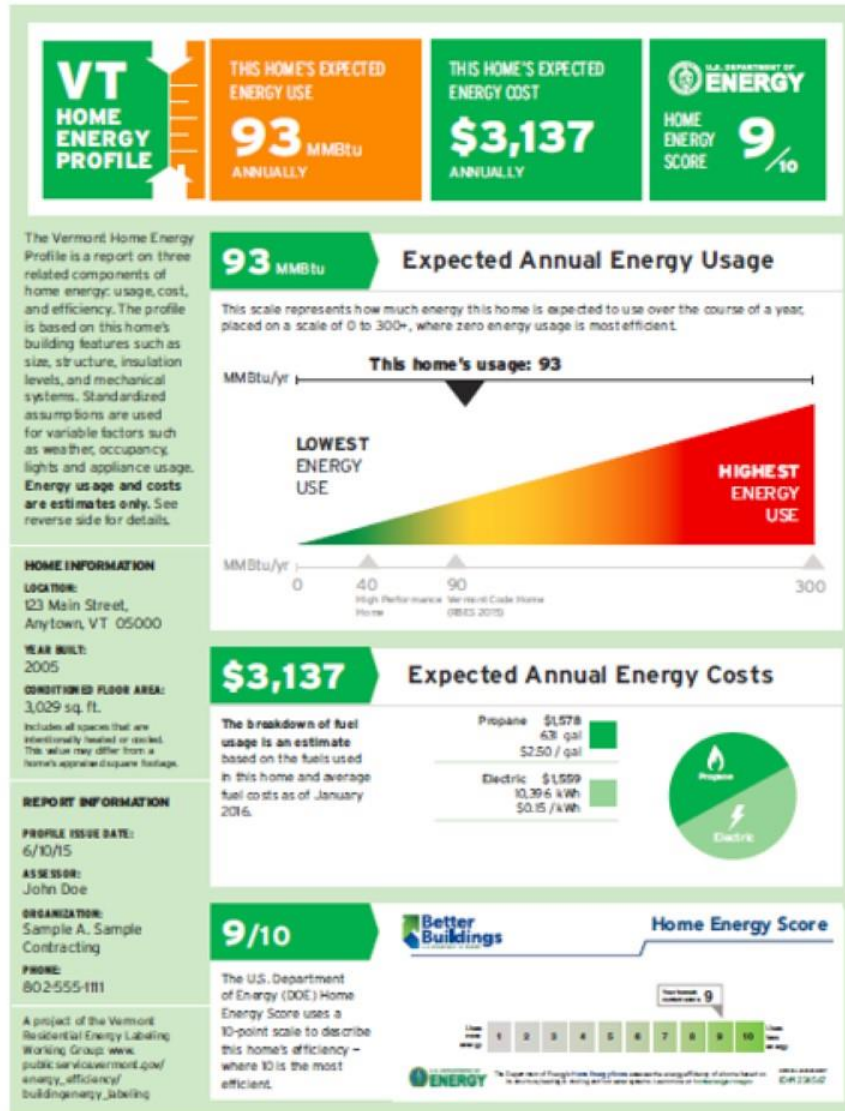
Vermont Realtors®



VT Public Service  
Department



# VT Home Energy Profile – Side 1



← Dashboard summarizing key information

← Expected annual energy use (MMBtu)

← Expected annual energy cost (\$)

← DOE Home Energy Score

# VT Home Energy Profile – Side 2

## How does the Vermont Home Energy Profile work?

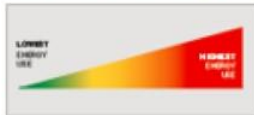
This Profile reports on three related components: estimated annual energy use, estimated annual energy costs, and the DOE Home Energy Score. Energy usage and cost are modeled based on this home's building features (such as size, insulation levels, mechanical systems), and standardized assumptions for the number of occupants, occupant behavior, weather, and lighting and appliance usage.

The energy features that contribute to this home's Profile are listed to the right. If you have questions about this Profile please contact Efficiency Vermont at 888-921-5990.

	THIS HOME	LOW ENERGY USE	VERMONT ENERGY CODE	HIGH ENERGY USE
Building Tightness	1.6 ACH50	1 ACH50	3 ACH50	7 ACH50
Air Conditioning	R-38	R-60	R-49	R-19
Wall Insulation	R-18	R-25+	R-25	R-2
Basement Wall Insulation	R-19 cavity	R-40	R-30 (cavity) or R-15 (continuous)	R-0
Windows	Double-Pane	Triple-Pane, Low-E, High Solar Gain	Double-Pane, Low-E (U-0.32)	Single-Pane, Clear
Heating System Efficiency	80 AFUE	90+ AFUE	Federal minimum, ~80 AFUE	70% or less AFUE
Primary Heating System/Fuel	Propane Boiler			
Hot Water System/Fuel	Propane, Indirect			
Solar PV Present?	No			

Home energy features in context

## What are the components of the Vermont Home Energy Profile?



### EXPECTED ENERGY USE

This section converts the total energy used in this home (electricity and fossil fuels like oil or gas) to a common unit of energy (MMBtu). A low MMBtu identifies a home as energy efficient with a smaller carbon footprint and lower energy costs.

1 MMBtu =

- 7 gal fuel oil
- 10 therms of natural gas
- 11 gal of propane
- 293 kWh of electricity
- .05 cords of wood



### EXPECTED ENERGY COSTS

Average Vermont fuel prices are used to generate the estimated annual energy costs presented in this section. Values are obtained from the Vermont Fuel Price Report. Current fuel price reports can be found here:

[www.publicservice.vermont.gov/publications/fuel\\_report](http://www.publicservice.vermont.gov/publications/fuel_report)



### US DEPARTMENT OF ENERGY HOME ENERGY SCORE

This section shows how this home compares to others nationwide. The score estimates the fossil fuels and electricity consumed in this home, as well as the energy required to produce, transport and deliver those fuels. For more information go to: [www.energy.gov/eere/buildings/home-energy-score](http://www.energy.gov/eere/buildings/home-energy-score)

Overview of key elements of Profile

## Take action!

**Information is power!** The Vermont Home Energy Profile can inform the next steps to improve this home's energy efficiency by indicating specific features that can be improved.

If you have questions about how to interpret this Profile please contact Efficiency Vermont at 888-921-5990.

For energy saving tips, links to qualified contractors, financing, and cash back rebates on energy saving equipment and services, contact the organizations listed here:

Efficiency Vermont • 888-921-5990  
[www.efficiencyvermont.com](http://www.efficiencyvermont.com)

Vermont Gas Systems • 802-863-4511  
[www.vermontgas.com](http://www.vermontgas.com)

Burlington Electric Department  
802-665-7342 • [www.burlingtonelectric.com](http://www.burlingtonelectric.com)

Vermont's Weatherization Program  
[www.dcf.vermont.gov/beo/weatherization](http://www.dcf.vermont.gov/beo/weatherization)

Resources for taking action



# Information is Asset-Based



## Asset

- ▶ Modeled energy performance
- ▶ Standardized for occupancy & weather
- ▶ Fixed over time

## Operational



- ▶ Actual energy usage
- ▶ Dependent on occupancy & weather
- ▶ Changes over time



# Generated Using DOE Home Energy Score Tool

- For consistency, all Vermont assessors should use the same energy modeling tool
- DOE's Home Energy Score Tool
  - Most accurate
  - Free & publicly available
  - Supported by PNNL
  - APIs to enable data transfer from other tools
  - Process to train and certify DOE Qualified Assessors



# Oversight & Coordination

- Efficiency Vermont is serving as statewide coordinator
- An Advisory Board provides guidance and oversight
- Received a State Energy Program award from DOE to advance labeling in VT and NH



# 2016 VT Home Energy Profile Pilot

- Profiles delivered by Home Performance contractors and independent assessors
  - 28 originally trained; 18 remaining active
  - Currently training two home inspectors
- Market-based pricing – no incentives/subsidies
- Outreach through Realtors and communities
- 48 Profiles generated to date



# Lessons Learned So Far

- Low demand from customers for voluntary labels at market prices
  - Prices ranged from \$0 to \$250
- Profiles used as a customer engagement tool
- Limited experience delivering Profiles at time of sale
- Challenges integrating Profile delivery with energy audit and retrofit programs

# Next Steps: 2017 Profile Pilot

- February 13 to June 30, 2017
- Driving demand for Profiles:
  - Profiles offered for free for limited time
  - Increased marketing via Efficiency Vermont, real estate education, and community outreach
- Goals:
  - Generate 200 additional Profiles
  - Test updated version of DOE tool
  - Continue learning how best to deliver voluntary labels in Vermont

# Progress on Commercial, Multifamily, & Mixed Use Building Labeling

# Commercial Energy Labeling Working Group

- Vermont Public Service Department
- Energy Efficiency Utilities
  - Efficiency Vermont
  - Vermont Gas Systems
  - Burlington Electric Department
- Weatherization Assistance Program representatives
  - Capstone Community Action
  - Vermont Fuel Efficiency Partnership
- Vermont Housing Conservation Board
- Energy Futures Group



# Progress & Decisions

- December 2014 Report to the Legislature
- Work in progress
- Focus on benchmarking:
  - The process of tracking a building's energy (and water) usage, using a standard metric to evaluate its relative efficiency over time as well as to compare the building's efficiency to its peers locally and nationwide.

# Benchmarking

- Actual operational energy consumption data
- Site-based energy usage
- EPA's ENERGY STAR Portfolio Manager ("ESPM")
- Energy Use Intensity ("EUI", measured in kBtu/square foot/year)
- Aggregate energy use data that protects tenant privacy but allows for data access
- An opt-out provision should be provided for tenants
- Engage and work with the private sector through EEU programs
- Phased implementation

# Outstanding Issues

- Budgets for supporting these recommendations
- Schedule that addresses development, field testing and reporting back to the Legislature
- Label design
- Benchmarking and labeling service statewide management, providers and process
- Technical resource call center
- Quality Assurance (QA) provider
- Data Storage
- Public Access to labeled building results
- Tenant lease language
- Evaluation



# Docket 8488

- 2015 - 2016
- Public Service Board workshops
- Filed recommendations and comments
- Working group requested authorizing the release of aggregated anonymized data by utilities
- PSB staff suggested legislative action



# Proposed Legislation

# Proposed Labeling Legislation

- Senator Bray to sponsor
- Residential
  - Time of sale Home Energy Profile information disclosure
  - Supported by Vermont Realtors
  - Similar to current well-water disclosure
- Commercial
  - Authorizing the release of the aggregated anonymized data by utilities to encourage benchmarking
  - Minimum of at least four tenants and none uses more than 50% of the total energy
  - Opt-out provision for tenants

# Thank you!

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